(2) Amended Claims

1. (Cancelled)

2. (Cancelled)

3. (Previously amended) A method according to claim 13 or 14, further comprising the step of:

   a) providing an expansion element in the form of a hollow profile in each joint between consecutive first and second pipe elements of the pipeline, said hollow profile being filled with a pressure-resistant fluid, and

   b) measuring the deformation in each joint.

4. (Cancelled)

5. (Currently amended) A method according to either of claims 13 or 14, ~~characterised~~ characterized in that said expansion element is divided into sections and the fluid pressure of each section is measured and individual fluid quantities are supplied to or extracted from sections by control command corresponding to the fluid pressure measured for the sections.

6. (Currently amended) A method according to claim 5**,** ~~characterised~~ characterized in that a header piece is controlled with a front expansion element.

7. (Cancelled)

8. (Currently amended) A method according to either of claims 13 or 14, ~~characterised~~ characterized in that the fluid pressure is measured in ~~an~~ said expansion element which in cross-section is circular, oval, elliptical or round in the direction of at least one face of the pipe.

9. (Currently amended) A method according to either of claims 13 or 14, ~~characterised~~ characterized in that the ratio of force exerted on pipe elements by the expansion element

to force permitted for said pipe elements is calculated and monitored periodically or continuously, and when

$$\frac{K_1}{K_2} \geq 1$$

an alarm is triggered, wherein K_1 = force exerted and K_2 = force permitted.

10. (Currently amended) A method according to either of claims 13 or 14, ~~characterised~~ characterized in that parameters are measured on pre-compression of the expansion element and the measured values of the parameters are stored.

11. (Currently amended) A method according to either of claims 13 or 14, ~~characterised~~ characterized in that calculation of values and comparing with stored values or converting into control commands take place in real time.

12. (Previously amended) A quality control method comprising: performing the steps according to claim 13 to obtain records, qualitatively or quantitatively evaluating the records and implementing quality control based on the evaluation.

13. (Currently amended) A method for determining propulsion force that is effective in a predetermined pipe element of a pipeline in a process for laying a pipeline into the ground by laying successive pipe elements including a most rearward pipe element at one end and a controllable header piece at the other end and advancing the pipe elements in a predetermined direction by means of a pressing device resting on an abutment, wherein the most rearward pipe element is pressed by the pressing device to advance it and the entire pipeline stepwise, pressing the most rearward element in the predetermined direction until a next pipe element can be inserted, then retracting the pressing device and inserting a new pipe element as the most rearward pipe element and driving it in the predetermined direction with said pressing device, repeating the above sequence until a last pipe element is advanced, ~~assembled from a plurality of individual pipe elements~~

~~during advancing said pipeline by a pressing device resting on an abutment and pushing the entire pipeline in the advance direction by a length of at least one pipe element~~ comprising the steps of:

a) aligning a plurality of pipe elements including said predetermined pipe element end-to-end to form a pipeline, wherein ~~a~~ the most rearward pipe element is located to receive a pressing force applied to it by a pressing device resting on an abutment for pushing the entire pipeline in the advance direction by a length of at least one pipe element,

b) measuring a fluid pressure in an expansion element in the form of a hollow profile provided in a joint between said predetermined pipe element and a further pipe element, said hollow profile being filled with a pressure-resistant fluid,

c) measuring a deformation of said joint by at least three local expansion measurements,

d) calculating geometric data of an expansion plane of said joint from said at least three local measurements, and

e) determining size and eccentricity of the propulsion force for advance of the entire pipeline in relation to a neutral axis or to an advance direction from said measuring of the fluid pressure and from the geometric data of the expansion plane.

14. (Currently amended) A method for producing a pipeline comprised of a plurality of pipe elements including a first and a second pipe element in ground, comprising the steps of:

a) providing a pressing device resting on an abutment and pushing the entire pipeline in an advance direction to advance the entire pipeline by a length of one pipe element by exerting a pressing force on ~~a~~ the most rearward pipe element to thereby advance the entire pipeline,

b) providing an expansion element in the form of a hollow profile in a joint between said first and ~~a~~ said second pipe element of the pipeline, said hollow profile being filled with a pressure-resistant fluid,

c) measuring a fluid pressure in said hollow profile,

d) measuring a deformation of said joint by at least three local expansion measurements,

e) calculating geometric data of an expansion plane of said joint from said at least three local measurements,

f) determining size and eccentricity of a propulsion force that is effective in said pipe element during advancing said entire pipeline comprised of said plurality of pipe elements, said size and eccentricity being determined in relation to a neutral axis or to an advance direction from said measuring of the fluid pressure and from the geometric data of the expansion plane.

15. (Previously presented) A method according to claim 14, comprising the step of: comparing said size and eccentricity of the propulsion force with stored standard values to avoid a risk of damage of pipe elements.

16. (Currently amended) A method for determining ~~a~~ propulsion force that is effective in a predetermined pipe element of a system for laying a pipeline into the ground by laying successive pipe elements including a most rearward pipe element at one end and a controllable header piece at the other end and advancing the pipe elements in a predetermined direction by means of a pressing device resting on an abutment, wherein the most rearward pipe element is pressed by the pressing device to advance it and the entire pipeline stepwise, pressing the most rearward element in the predetermined direction until a next pipe element can be inserted, then retracting the pressing device and inserting a new pipe element as the most rearward pipe element and driving it in the

predetermined direction with said pressing device, repeating the above sequence until a last pipe element is advanced, the system comprising:

a) a pressing device resting in a pressing bay on an abutment;

b) several pipe elements in front of the pressing device with respect to a direction of pipe element advancement, namely ~~a~~ the rear-most pipe element in front of said pressing device and further pipe elements in front of said rear pipe element,

c) a hollow, hose-~~like~~ pressure transmitting element in a joint between two pipe elements of said several pipe elements, said hollow pressure transmitting element being filed with a pressure-resistant fluid,

d) a filling valve connected to the pressure transmitting element, the filling valve being closed during advancement of the entire pipeline of several pipe elements by said pressing device,

e) a pressure measurement device for measuring fluid pressure in said pressure transmitting element during propulsion,

f) a deformation measurement device for measuring at least three local expansions of said joint during propulsion,

wherein the method comprises the following steps:

g) providing control commands to the pressing device, wherein said control commands define an actual propulsion force that is sufficient to advance all of the several pipe elements at once,

h) applying said actual propulsion force by the pressing device to said rear-most pipe element wherein the propulsion force is transmitted at once along the several pipe elements from pipe element to pipe element and is resulting in an exerted force at said joint

i) measuring the fluid pressure in said hollow hose-~~like~~ pressure transmitting element of said joint during advancement of the several pipe elements by the pressing device,

j) measuring the deformation of said joint during advancement of the several pipe elements,

k) calculating geometric data of a pressure transmitting plane of said joint from said at least three local expansion measurements,

l) determining size and eccentricity of the exerted propulsion force that is effective in said joint during advancement of said entire pipeline, said size and eccentricity being determined - in relation to a neutral axis (N) or to an advance direction - from said measuring of the fluid pressure and from said geometric data of the pressure transmitting plane.

17. (Currently amended) A method for producing a pipeline of pipe elements in ground by laying successive pipe elements including a most rearward pipe element at one end and a controllable header piece at the other end and advancing the pipe elements in a predetermined direction by means of a pressing device resting on an abutment, wherein the most rearward pipe element is pressed by the pressing device to advance it and the entire pipeline stepwise, pressing the most rearward element in the predetermined direction until a next pipe element can be inserted, then retracting the pressing device and inserting a new pipe element as the most rearward pipe element and driving it in the predetermined direction with said pressing device, repeating the above sequence until a last pipe element is advanced, comprising the steps of:

a) providing a pressing device resting on an abutment in a pressing bay,

b) providing several pipe elements arranged in front of the pressing device and between the pressing device and a header piece ~~(30)~~ of the pipeline, namely ~~a~~ the

rear-most pipe element in front of said pressing device and further pipe elements in front of said rear pipe element,

c) providing a hollow, hose-~~like~~ pressure transmitting element in a joint between two pipe elements of said several pipe elements, said hollow pressure transmitting element being filed with a pressure-resistant fluid,

d) providing a filling valve connected to the pressure transmitting element,

e) the filling valve being closed during advancement of the entire pipeline of several pipe elements by said pressing device,

f) providing control commands to the pressing device, wherein said control commands define an actual propulsion force that is sufficient to advance all of the several pipe elements at once,

g) applying said actual propulsion force by the pressing device to said rear-most pipe element generating simultaneous advancement of the several pipe elements in the advance direction by transmission of the propulsion force from pipe element to pipe element and resulting in an exerted propulsion force at said joint

h) measuring a fluid pressure in said hollow hose-~~like~~ pressure transmitting element of said joint during simultaneous advancement of the several pipe elements by the pressing device,

i) measuring a deformation of said joint by at least three local expansion measurements,

j) calculating geometric data of a pressure transmitting plane of said joint from said at least three local expansion measurements,

k) determining size and eccentricity of the exerted propulsion force that is effective in said joint during advancement of said entire pipeline, said size and eccentricity

being determined - in relation to a neutral axis (N) or to an advance direction - from said measuring of the fluid pressure and from said geometric data of the pressure transmitting plane,

l) controlling said propulsion force of the pressing device depending on said determined size and eccentricity of the propulsion force and triggering an alarm if the exerted propulsion force that is effective in said joint exceeds the permitted propulsion force for the determined size and eccentricity of the propulsion force.

18. (Previously presented) Method according to claim 17, comprising the step of pushing the entire pipeline of several pipe elements in the advance direction by a length of at least one pipe element and inserting a new rear pipe element.